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EXAMINER

STRANGE, AARON N

ART UNIT PAPER NUMBER

2153

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,449

Applicant(s)

ELGEBALY ET AL.

Examiner

Aaron Strange

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/19/04 have been fully considered but they are not persuasive.
2. With regard to claim 1, and Applicant's assertion that Goldberg fails to teach or suggest "priming" the NAT device by sending data through the NAT device "using the same port on which the a responsive communication is expected and/or desired" (Page 18, Lines 3-4 of Remarks), the Examiner respectfully disagrees.

Since the application server responds to the session setup in order to instruct the first machine to send the special message to the second machine (Goldberg, Page 9, Lines 12-14), the session setup must have been sent using the same port on which the responsive communication is expected and/or desired. The response cannot go to a port other than the one from which the session setup was sent since the NAT device will only have a translation for the address/port pair from which the session setup was sent.

3. With regard to claim 5, and Applicant's assertion that an alias is not inherent in the system disclosed by Goldberg, the Examiner respectfully disagrees. Applicant asserts that two machines which have the same internal LAN addresses and ports will be differentiated once they communicate through their NAT devices, since the NAT devices have different IP addresses. The Examiner disagrees with Applicant's assertion. An association must be made between the external address/port combination and the system which it represents. Since the internal address/port combination is not

uniquely identifying, there is no way to differentiate between the two devices to determine the proper routing.

For example, machine A and B are both behind NAT devices. Each one uses 192.168.0.1 as an internal IP address and 1024 as a port. 192.168.0.1 is within the well-known private address space, and thousands of computers worldwide have this as an internal IP address. Once A goes through a NAT, its address/port will be A1/P1 and once B goes through its NAT, its address/port will be A2/P2. Without the use of an alias, the only information known about machines A and B are is that their address port combination is 192.188.0.1/1024, and there would be no way to determine which device is at A1/P1 and which is at A2/P2. Therefore, an alias *must* be used to differentiate the two devices.

4. With regard to claim 5, and Applicant's assertion that "The Office incorrectly states the application server would not know this information unless it has stored it when determining that client A was behind a NAT" (Page 18, Lines 20-21 of Remarks), the Examiner respectfully disagrees. That statement was made in regard to the registration of the first machine (client A). As discussed in the rejection for claim 5, since the application server notifies the second client of the external address and port required to contact client A behind the NAT (Page 9, Lines 26-31), the contact information for client A must have been stored when determining that client A was behind a NAT, or the application server would not have know the information. As

discussed above, the alias is required in order to uniquely identify the endpoints, so it must have been stored in the registration process as well.

5. With regard to claim 8, and Applicant's assertion that Goldberg fails to anticipate the recited alias or priming the endpoint (Page 19, Lines 9-13 of Remarks), the Examiner respectfully disagrees for the reasons discussed above regarding claims 1 and 5.

6. With regard to claim 21, and Applicant's assertion that Goldberg fails to teach "priming the network translation device, by sending at least one network packet to the second endpoint...on the content port, **before** completing setting up the communication session with the second endpoint", the Examiner respectfully disagrees. Goldberg discloses priming the NAT by sending at least one packet (special message) to the second endpoint before completing the session setup (Page 9, Lines 10-17).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-7,10,14,20,23,27, and 30 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. A substantial portion of the claims rejected under 35 USC 112, second paragraph have been corrected by Applicant's amendments. However, some of the amendments raised new issues and at least the following issues remain:

10. Claim 1 recites the limitation "the method" in line 5. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 4 recites the limitation "the entry" in line 8. There is insufficient antecedent basis for this limitation in the claim.

12. With regard to claim 10, it remains unclear where the steps of claim 10 are being performed. Applicant's remarks state "Regarding claims 8-10, a registration server has been added as performing the recited operations" (Page 16, 17-18 of Remarks). However, claim 10 recites "sending an acknowledgement through the NAT to the second endpoint". According to the preamble of claim 8, the first endpoint is behind the NAT. Nothing in the claims states or suggests that the registration server is also behind the NAT. IN fact, since it receives a registration from the first endpoint with an apparent origin address of the NAT, it cannot be behind the same NAT as the first endpoint.

13. With further regard to claim 10, the last two steps are unclear. Page 12, Lines 15-21 of the present application contradicts what appears to be claimed in claim 10, and the language used is unclear. The cited portion of the specification states that "it tests

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the acknowledgement to identify 544 that a translation has occurred, e.g., that address A1 port P20 embedded in the protocol data is *not routable*" (emphasis added). If translation is identified, the second endpoint waits for content to be sent from the first endpoint. Claim 10 states that the second endpoint will wait for data from the first endpoint if second network address is *routable*.

14. Claim 10 recites the limitation "the second network address" in line 5. There is insufficient antecedent basis for this limitation in the claim.

15. Claim 14 is rejected for the same reasons cited above for claim 4.

16. Claim 20 is rejected for the same reasons cited above for claim 10.

17. With regard to claims 23, 27, and 30, while Applicant's explanation of claim 23 is helpful in understanding lines 1-7 of the claim, the rest of the claim remains unclear. Claim 23 recites "identifying that the second session registration comprises a network address that is routable" in lines 9-10. However, claim 22 states that the second session registration comprises a non-routable network address. Furthermore, lines 5-6 of claim 23 recite "identifying that the second session registration comprises a network address that is non-routable". It is unclear if there are multiple network addresses in the second session registration, or if the method is intended to comprise different steps depending on whether the network address is routable or non-routable.

Claim 23 also appears to register the first endpoint twice in two different manners (Lines 6-7 and 10-11). It is unclear if these are intended to be alternative methods of registration or if both registrations are executed.

18. Applicant's assistance is requested and appreciated in identifying any additional errors that may be present in the claims.

19. All claims not individually rejected are rejected by virtue of their dependency from the above claims.

Claim Rejections - 35 USC § 102

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

21. Claims 1-3,5-9,11-13,15-17,18,19, and 21-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Goldberg et al. (WO 02/03217).

22. With regard to claim 1, Goldberg discloses a communication protocol for initiating a session through a NAT, comprising: preparing a session setup for a session between a first machine and a second machine, the session setup identifying a non-routable internal origin address (internal IP address) and internal port to which the first machine (Client A) will listen for a response to the session setup (Page 6, Lines 21-23); and sending the session setup to the second machine (application server) through the network translation device using the internal port so as to prime the network translation device for receiving the response to the session setup (Page 6, Lines 19-30); wherein said network translation device does not modify the session setup (session info is sent as data, so it is not modified), and wherein the second machine is configured to inspect the session setup, and identify if the session setup includes the non-routable internal origin address (Page 7, Lines 4-9).

23. With regard to claim 2, Goldberg further discloses that translation by the network translation device results in network traffic having the external origin address and an external port different from the non-routable internet origin address and the internal port in said session setup (Page 7, Lines 4-9).

24. With regard to claim 3, Goldberg further discloses registering the first and second machines with a registration server for registering communication endpoints (all endpoints are registered when determining if they are behind NAT devices) (Page 7, Line 24 to Page 8, Line 18).

25. With regard to claim 5, Goldberg further discloses that the second machine is a registration server (application server) for registering machine aliases with network addresses (coordinates the link establishment between the devices) (Page 6, Lines 15-17), the protocol further comprising the registration server: receiving the session setup, examining the session setup to identify whether the session setup comprises the non-routable internal origin address (Page 6, Lines 21-23).

While Goldberg fails to specifically disclose an embedded alias as part of the session setup or registering the endpoint, these limitations are inherent. Since the other information in the registration (IP address and port) is not uniquely identifying, an alias must be provided in order to form an association between the external address/port combination and the specific computer. Two machines behind different NAT devices could share an identical internal IP address and port, making the registration process invalid without a unique identifier, since Goldberg discloses that the application server can handle communication between two different NAT networks.

While the specific step of registering the first endpoint with the apparent origin address, embedded port, and embedded alias is not disclosed by Goldberg, the application server notifies the second client of the external address and port required to contact client A behind the NAT (Page 9, Lines 26-31). The application server would not know this information unless it has stored it when determining that client A was behind a NAT. Therefore, this limitation is present in the system disclosed by Goldberg despite the lack of a specific reference to it.

26. With regard to claim 6, Goldberg further discloses that the second machine is an endpoint to the communication session, further comprising the second machine: receiving the session setup (Page 6, Lines 21-23); determining the session setup indicates the second machine should send a session acknowledgment to the non-routable internal origin address (Page 7, Lines 4-8); and disregarding the non-routable internal origin address identified in the session setup and instead sending the session acknowledgement to the first machine at the external origin address (Notify the first machine to start session initiation)(Page 9, Lines 12-14). While Goldberg fails to specifically recite the address to which the session acknowledgement is sent, it must be sent to the external origin address if the device is behind a NAT, or it will not be received. Since the first machine receives the message, it must have been sent to the external origin address.

27. With regard to claim 7, Goldberg further discloses the network translation device: receiving the session acknowledgement for the first machine from the second machine; and translating the session acknowledgement for delivery to the non-routable internal origin address using the expected response port primed by the first machine.

While Goldberg fails to specifically recite that the network translation device translates the acknowledgement for delivery using the expected response port, this limitation is inherent. Since the first machine receives the message (Page 9, Lines 12-14) from behind a NAT, the translation device must have translated the

acknowledgment for delivery to the internal address using the expected response port since this is the only way in which a device behind a NAT can receive a response.

28. With regard to claim 8, Goldberg discloses a method for a registration server to facilitate communicating between a first endpoint (Client A) behind a network address translator (NAT) and a second endpoint (application server), comprising: receiving a first registration for the first endpoint, said registration comprising an embedded address (IP address) and embedded port primed by the first endpoint (Page 6, Lines 21-23), wherein said registration has an apparent origin address of the NAT (external address) (Page 8, Lines 25-27); determining the embedded network address is a non-routable address (Different from the external address) (Page 7, Lines 4-9).

While Goldberg fails to specifically disclose an embedded alias as part of the session setup or registering the endpoint, these limitations are inherent. Since the other information in the registration (IP address and port) is not uniquely identifying, an alias must be provided in order to form an association between the external address/port combination and the specific computer. Two machines behind different NAT devices could share an identical internal IP address and port, making the registration process invalid without a unique identifier, since Goldberg discloses that the application server can handle communication between two different NAT networks.

While the specific step of registering the first endpoint with the apparent origin address, embedded port, and embedded alias is not disclosed by Goldberg, the application server notifies the second client of the external address and port required to

contact client A behind the NAT (Page 9, Lines 26-31). The application server would not know this information unless it has stored it when determining that client A was behind a NAT. Therefore, this limitation is present in the system disclosed by Goldberg despite the lack of a specific reference to it.

29. With regard to claim 9, Goldberg further discloses receiving from the second endpoint a resolution request for the alias (INFO/NAT message) (Page 20, Lines 20-21); replying to said request with at least the apparent origin address (reINVITE message); receiving a session setup from the second endpoint (response w/SDP); and forwarding the session setup to the first endpoint at the apparent origin address (Page 20, Lines 20-30).

30. With regard to claim 21, Goldberg discloses a method for a first endpoint internal to a network translation device to set up a communication session with a second endpoint external to the network translation device, the method comprising: contacting a registration server to resolve an alias for the second endpoint (INVITE/SDP is sent to app server); receiving a first session registration from the registration server (INFO/NAT message is received from app server), the first session registration comprising a network address for the second endpoint that is routable, and a content port to which content should be sent to for the second endpoint (Page 20, Lines 13-15); and priming the network translation device, by sending at least one network packet to the second endpoint at the routable address on the content port, before completing setting up the

communication session with the second endpoint (Send RTP/NAT message) (Page 20, Lines 2-30 and Fig 12).

31. With regard to claim 22, Goldberg further discloses sending a second session registration for the first endpoint to the registration server, the second session registration comprising a network address for the first endpoint that is non-routable (Page 19, Lines 18-20).

32. With regard to claim 23, as best understood by the Examiner, Goldberg further discloses that the registration server receives session registrations from both the first and second endpoints. The server first determines which endpoints are located behind a NAT (Page 19, Lines 12-20). While Goldberg fails to specifically disclose that the devices are registered, this limitation is inherent, because the server provides the appropriate addressing information to each endpoint when assisting with the connection setup (Page 20, Lines 2-30).

33. With regard to claim 24, Goldberg further discloses that the registration server is configured to identify the non-routable network address within the second session registration, and responsive to said identifying, registering the first endpoint with respect to a routable address associated with the network translation device (Page 19, Lines 14-20).

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34. Claims 11-13, and 15-19 are rejected for the same reasons cited for claims 1-3 and 5-9, respectively. The limitations set forth in the body of the claims are identical to the limitations set forth for claims 1-3 and 5-9. The further limitations set forth in the preamble are inherent.

35. Claims 25-27 and 28-30 are rejected for the same reasons cited for claims 21-23, respectively. The limitations set forth in the body of the claims are identical to the limitations set forth for claims 21-23. The further limitations set forth in the preamble are inherent.

Claim Rejections - 35 USC § 103

36. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

37. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. (WO 02/03217) in view of Network Safety.

38. With regard to claims 4 and 14, while the system disclosed by Goldberg shows substantial features of the claimed invention (discussed above), it fails to disclose the network address translation device: receiving the session setup for the session; sending

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the session setup to the second machine; recording said sending in an access authorization table; receiving data from a network; and comparing said received data with at least a portion of the access authorization table the entry to determine if said received data is responsive to said sending the session setup.

Network Safety teach a method of providing enhanced network security in a NAT by only forwarding incoming messages which exactly match a connection. By recording all outgoing sessions, the responses to those sessions can be forwarded to the appropriate machines inside the Nat, while other traffic can be dropped. This helps to prevent unauthorized access to machines inside the NAT, increasing the security of the network.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to record outgoing connections in an access table within the NAT, and check incoming messages to see if they match entries in the table. This allows unauthorized traffic to be prevented from entering the network, increasing security.

Conclusion

39. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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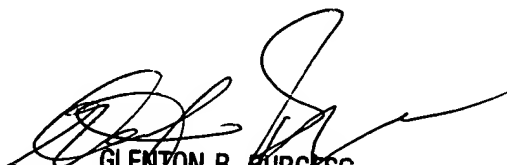
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS
4/1/2005


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